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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/825,599

04/04/2001

Timothy B. Robinson

42155/RJP/E264

3709

23363

7590

06/23/2005

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EXAMINER

JUNTIMA, NITTAYA

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/825,599	ROBINSON ET AL.	
	Examiner	Art Unit	
	Nittaya Juntima	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 3/4/2005.
2. The objections to the drawings, specification, and claims are withdrawn in view of applicant's amendment.
3. Claims 2 and 6 have been cancelled.
4. Claims 1, 3, 5, and 7 stand rejected under 35 U.S.C. 102(b).
5. Claims 4 and 8 are rejected under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Wittman (USPN 4,595,802).

Per claim 1, as shown in Fig. 2, Wittman teaches a method for optimizing signal transformation from a twisted pair transmission line (a two-wire line) to a combination transmitter (a transmitter connecting to transmit port 29) and receiver (a receiver connecting to a receive port 30), the transmitter having a transmit output pair port (a transmit port 29) for transmitting signals onto the switching office over the twisted pair transmission line and the

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receiver having a receive input pair port (a receive port 30) for receiving signals from the switching office over the twisted pair transmission line, comprising:

coupling a transformer (18) between the twisted pair transmission line and each of the transmit output pair port (29) and the receive input pair port (30), the transformer having a coil (19a and 19b joined together as one by capacitor 28) across the twisted pair, a transmit coil (21a) across the transmit output pair port (29), and a receive coil (21b) across the receive input pair port (30). See col. 2, ll 44-68. See also col. 1, ll 9-17, Fig. 1, and col. 2, ll 10-13.

Further, it is inherent that a transfer ratio between the transmit coil and the coil across the twisted pair must be optimized for transmitting signals and a transfer ratio between the receive coil and the coil across the twisted pair must also be optimized for receiving signals in order for the hybrid circuit 38 to be effectively receiving and transmitting signals, col. 2, ll 63-68.

Regarding maximizing the signal to noise ratios, since the signals are received and transmitted using a transformer 18 of Fig. 2 (col. 2, ll 44-68) with two equal sections a transmit coil (21a) and a receive coil (21b) (col. 2, ll 15-17), it is inherent that the transfer ratio between the transmit coil and the coil across the twisted pair and the transfer ratio between the receive coil and the coil across the twisted pair must be optimized by optimizing transmit coil to coil across the twisted pair turns ratio, i.e. $21a : (19a+19b)$, and receive coil to coil across the twisted pair turns ratio, i.e. $21b : (19a+19b)$, to maximize respective transmit path and receive path signal to noise ratios because line impedance is matched by the transformer (18), therefore, line interference/noise is minimized.

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Per claim 3, Wittman further teaches that the twisted pair transmission line (a two-wire line) is a telephone line having a tip line (a tip wire 12) and a ring line (a ring wire 11). See Fig. 2 and col. 2, ll 10-14 and 44-49.

Claims 5 and 7 are apparatus claims corresponding to method claims 1 and 3, respectively, and therefore are rejected under the same reason set forth in the rejections of claims 1 and 3, respectively.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wittman (USPN 4,595,802).

Per claim 4, Wittman also teaches that a receive coil:transmit coil ratio is 1 (winding 21a and winding 21b are equal, col. 2, ll 15-17).

However, Wittman does not teach that the transmit coil to coil across the twisted pair turns ratio is designated wt:1 and the receive coil to coil across the twisted pair turns ratio is designated wr:1.

However, it would have been obvious to one skilled in the art to modify the teaching of Wittman to include that the transmit coil to coil across the twisted pair turns ratio is designated wt:1 and the receive coil to coil across the twisted pair turns ratio is designated wr:1 as long as it

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does not produce any unexpected results and such modification involves only routine skill in the art.

Claim 8 is an apparatus claim corresponding to method claim 4, and therefore are rejected under the same reason set forth in the rejections of claim 4.

Response to Arguments

10. Applicant's arguments filed 3/4/2005 have been fully considered but they are not persuasive.

A. In the remarks regarding the amended claim 1, the applicant argued that (i) the impedances in Wittman do not match, i.e. 21a is not equal to 21b in Fig. 2, and (ii) impedance matching does not inherently yield noise reduction, therefore, Wittman does not teach the limitation that the respective transfer ratios are optimized by optimizing the respective turns ratios to maximize the respective signal to noise ratios as recited in the amended claim 1.

In response, Wittman clearly teaches that sections 21a and 21b are of equal parts (col. 2, ll 15-18), therefore, impedances must be matched, i.e. the transmit coil to coil across the twisted pair turns ratio (21a: (19a+19b)) = receive coil to coil across the twisted pair turns ratio (21b: (19a+19b)). In addition, it is inherent and well known in the art (for applicant's benefit, please see US 5,298,828 (Abstract), US 6,407,987 (col. 8, ll 59-64), US 5,796,853 (col. 3, ll 18-26), and US Re. 31,436 (col. 2, ll 61-col. 3, ll 7) for additional information on the use of impedance matching transformers for noise reduction) that the impedance matching transformer such as that of Wittman minimizes the noise (e.g. line interference/signal reflection), thereby the transfer ratios are optimized and the transmit path and receive path signal to noise ratios are maximized.

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Further, there is no structural or functional difference between the claimed transformer and the transformer in Fig. 2 of Wittman.

For the reasons given above, it is clear that all the claimed limitations are met by the reference. Therefore, the rejection of claim 1 is sustained. Claims 3-4 are dependent of claim 1, and claims 5 and 7-8 correspond to claims 1, and 3-4. The applicant failed to point out the error in the motivation of the rejection of claims 4 and 8. As such, these claims are rejected for the same reasons set forth in the rejection of claim 1.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 (or 571-273-8300 on July 15, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
June 20, 2005

NJ


RICKY NGO
PRIMARY EXAMINER

6/25/05